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1. SIMULATION OF MODIS ALGORITHMS

During the preparation of the scientific principles for the development of algorithms for MODIS we found that significant progress cannot be done without a set of representing surface spectral and angular reflection. Such algorithms include atmospherically resistant vegetation index (Kaufman and Tanre, 1992), algorithms for remote sensing of the aerosol particles (Holben et al., 1992) and for remote sensing of water vapor (Kaufman and Gao, 1992). In the last quarter progress have been made on this issue in the following categories:

- Analysis of the photographic radiative data from the field experiment in a desert transition zone in Israel. This data set should provide information on the angular reflection in 4 spectral bands (blue, green, red and near IR) for varying conditions of the desert transition vegetation.

- Bo-Cai Gao, from the University of Colorado joint us 1/2 time and with the help of Eric Vermote acquired a work station to analyze AVIRIS data and will work on generating a data set from the AVIRIS data for different surface covers to simulate the MODIS solar channels.

2. REMOTE SENSING OF CIRRUS CLOUDS

It is recognized that MODIS is capable for remote sensing of cirrus clouds only down to the product of emissivity and fraction of surface cover of 0.1. The situation is probably worst above other clouds. As a result we suggested to try and adopt the cirrus channel proposed by Gao and Goetz based on analysis of AVIRIS data to MODIS. As expected it is difficult to find a channel that can be replaced with the newly suggested 1.38μm channel. Work is being done on this subject as a preparation for a discussion during the MODIS meeting.

3. ANALYSIS OF THE PROPERTIES OF THE 3.75 μm CHANNEL FOR MONITORING FOREST PIXELS AS A BASIS FOR REMOTE SENSING OF AEROSOL.

A work is in progress to use the 3.75 μm channel to identify pixels with dense dark vegetation above which the aerosol loading can be determined (Kaufman and Sendra, 1988; Holben et al., 1992). Lorraine Remer checked the properties of a vegetated area from 50 images to compare the time dependence of a vegetation index based on the reflectance in the 3.75 μm channel with the NDVI. We also investigated the relationship between the 3.75 index and several non-vegetative parameters: precipitation, temperature, visibility, humidity, etc.

4. GROUND BASED MEASUREMENTS OF AEROSOL PROPERTIES

Work is in progress to analyze the data set of aerosol radiative properties taken from the ground from 15 different locations around the globe. The data is analyzed to compare the aerosol size distributions with the spectral optical thickness. The accuracy of determining the scattering phase function from the particle physical properties is also being analyzed.

The automatic sunphotometers/radiometers that will speed up the collection of aerosol data are being evaluated by Brent Holben and Eric Vermote.